

WHAT IS CLAIMED IS:

1. A press device for use in the leather industry having an extended nip for dewatering hides, comprising:

a press roll having a smooth cylindrical surface;

5 a pressure shoe having a cylindrically concave surface whose radius of curvature is substantially similar to that of the press roll; the pressure shoe being in close physical proximity to the press roll, thereby forming the extended nip between the press roll and the pressure shoe;

10 hydraulic means operatively attached to the pressure shoe to adjust the distance between the press roll and the pressure shoe to control a pressure of the extended nip;

a shoe press belt encircling and sliding over the pressure shoe on a lubricating film of oil; the shoe press belt being impermeable to oil and having grooves on an outer surface thereof;

15 a first felt belt encircling and rotating about the press roll; and

a second felt belt encircling the press belt and rotating about the pressure shoe; wherein the shoe press belt prevents the second felt belt from directly sliding against the pressure shoe;

20 wherein wet hides are placed between the first and second felt belts and conveyed through the extended nip; the extended nip pressing water from the hides through the second felt belt where the water is channeled away via the grooves in the shoe press belt.

25 2. The device of claim 1, wherein the extended nip is at least five times longer in the machine direction than a conventional press nip formed between two press rolls.

3. The device of claim 1, wherein the extended nip increases the dwell time of the hide in a press nip while maintaining a desired pressure level.

30 4. The device of claim 1, wherein the extended nip increases the dewatering efficiency of the hides over a conventional press nip.

5. The device of claim 1, wherein the grooves in the shoe press belt run in both the machine direction and cross-machine direction on the outer surface of the shoe press belt, thereby providing sufficient voids and/or paths to channel the water pressed from the hides.

6. The device of claim 1, wherein the first and second felts belts are endless woven or seamed fabrics.

7. A shoe press belt for use on an extended nip press to dewater hides in the leather industry, characterized by machine direction grooves and cross-machine direction grooves on an outer surface of the shoe press belt, thereby providing voids and/or paths to channel water pressed from the hides.

8. The shoe press belt of claim 7, wherein the shoe press belt is impermeable to oil, and encircles and slides over a pressure shoe in the extended nip press on a lubricating film of oil.

9. The shoe press belt of claim 8, wherein the shoe press belt prevents an encircling felt belt in the extended nip press from directly sliding against the pressure shoe.

10. The shoe press belt of claim 8, wherein the shoe press belt has a base support structure generally taking the form of an endless loop having an inner surface, the outer surface, and having a defined thickness.

11. The shoe press belt of claim 10, wherein the base support structure is a woven, knitted, or braided base fabric impregnated with a synthetic polymeric resin.

12. The shoe press belt of claim 11, wherein the synthetic polymeric resin has a hardness sufficient to maintain groove integrity and flexible enough to resist cracking.
- 5 13. The shoe press belt of claim 10, wherein the base support structure is stable and resistant to stretching in both the machine direction and cross-machine direction.
- 10 14. The shoe press belt of claim 10, wherein the defined thickness of the shoe press belt is based on the required depth of the machine direction grooves and cross-machine direction grooves to channel the water pressed from the hides.
- 15 15. The shoe press belt of claim 10, wherein the inside surface of the shoe press belt is a smooth, impervious surface to slide readily over the lubricated pressure shoe and to prevent any of the lubricating oil from penetrating the belt and contaminating the hides being pressed.
- 20 16. The shoe press belt of claim 7, wherein the shoe press belt has a length of 9 to 20 feet and a width sufficient for the press device.
17. The shoe press belt of claim 10, wherein the base support structure includes a staple fiber batt of a polymeric resin material needled into the structure thereof.